

Specification

Simple safety vehicle control gear.

Technical Field

The present invention relates to a system or machinery minimizing a human error in driving by reducing a circumference watch burden of a car for safe driving of a driver, automating a run of a car and putting a car in a garage, with which the most of beginners have difficulty.

And, this invention is a system or machinery letting reduce the possibility that a serious traffic accident occurs to the maximum when a car caused malfunction by misunderstanding of a driver.

Furthermore, this invention is a system which prevents an abnormality run by analyzing automatically whether operation intention of a driver and the situation of a current road are agreed.

Moreover, this invention is a system which driving of a car enables with a senior citizen in coming aging society by advancing current car navigation system which utilize traffic information and a road map using GPS, reducing fatigue of a driver, and enabling safe driving.

In addition, this invention is a system which reducing of a fuel efficiency and a amount of discharge of a pollution substance by digitizing operation of a car and electronically controlling.

Safety in driving of a car depends on circumference watch by human eyes for most. Therefore, if a state of eyes and a state of ability for judgment and a state of health of a driver is bad, a serious traffic accident can occur.

It is possible to drive a car depending on a traffic condition by always operating a steering wheel, an accelerator, brakes, pedals such as clutches, and the lever which operates a gearbox with both hands both legs.

However, there are many cases that a function of a car which a designer aimed at is not used enough so that there is an ability difference by an individual.

As a result of not using a function of a car which a designer aimed at enough, Load to

environment increases because of increasing a amount of discharge of global warming gas by increasing a amount of discharge of a pollution material and fuel consumption.

Safety in driving of a car depends on ability of a driver now.

However, in statistics, human motor nerves and judgment as the whole declines with progress of aging society slowly because a ratio of a senior citizen is to increase with progress of aging society.

Therefore, necessity of a safety device automated automatically rises as means to raise safety of driving.

Therefore, this invention offers a device which raises safety and reduces human fatigue, and evades an accident automatically.

This invention offers a device which let ability for management of a driver increase and contributes to prevention of fatigue at the time of driving.

Disclosure of invention

The present invention relates to a system comprising; changing lens angles of elemental devices such as CCD, ; focusing object images provided by devices; patterning images detected in shortest distance from 360 degree by measuring distance from objects; and collating patterned data for determination of risks.

The patterning comprises; dividing patterns roughly to children, ages, cars, and animals; analyzing normal behavioral patterns for each of them; recording; and predicting actions of objects over the next 0.1-5 seconds to avoid risks certainly.

Vertical information of a spot is used added to graphic information provided by car navigation system using GPS in order to obtain automated driving of cars.

That is, three-dimensional road information is used consistently.

Additionally, the information such as meanings of road sign, guardrail, center line, no-passing zone, passing zone are used as well as the information of the driving operation.

The information is patterned and compared with information detected by own car to convey it to the control devices in a car.

Wide angle lenses are used for the elemental devices to provide images. Changing of the lens angles causes focusing images provided by plural lenses.

Distances from the object are measured by changing of the lens angles or changing of the photographic devices.

The elemental devices detect objects. Patterned objects are compared with patterns stored in a memory device to predict moving states of the objects from those patterns. Therefore, position of the objects over a next few seconds are predicted, and the risks of cars are calculated to avoid them.

Plural operational sticks are used to control the driving. Those operational sticks are fly-wire type. All of information of sticks is replaced to electrical signals to transmit various control devices through operation control device.

One control stick for controlling speed, driving direction, and acceleration comprises an actuation button as a safety device to operate.

Another control stick is used to transmit the driving mode to a drive control panel. It is used to set driving modes such as automated driving mode, manual driving mode, overtaking mode, parking mode. It comprises an actuation button as a safety device to operate.

In addition, it is possible to combine these plural sticks into one stick.

In preparation for the night time, supplemental lightning such as an infrared light may be placed to recognize object, otherwise elemental devices such as CCD could not work enough to recognize objects around them.

Two or more elemental devices are placed in either side of backward to confirm around 360 degree consistently.

Four or more photographic devices and a photographic control device for dividing graphical contents are placed to recognize patterns in 360 degree consistently.

Protective coverings are placed in front of lenses and fill lights which are placed in front of elemental devices. In addition, cleaning equipments or other equipments for removing sludge or dust are placed not to cut off the view.

The present invention provides a transit vehicle for ages or physically-handicapped

person to use easily by omitting steering operations and pedals such as a clutch, a brake and an accelerator. In addition, the present invention contributes to the prevention for the serious accidents caused by illusion or the error by oversight of the traffic signals.

Highly directional antennas are placed on front and backside to catch a high-frequency radio wave of the noise radiated from carbon brush which is placed at a rotor of the electrical motor in order to determine the distance between two cars.

It makes easy to find out the near collision.

Brief description of the drawings

Fig.1 is a schematic diagram showing a mounting location for sensors, fill lights, and operational sticks of a car.

Fig.2 is a schematic diagram showing sensors and lenses.

Fig.3 is a schematic diagram showing a operation stick 1.

Fig.4 is a schematic diagram showing a operation stick 2.

Fig.5 is a schematic diagram showing a driving control panel.

Fig.6 is a schematic diagram showing a driving sign-board.

Fig.7 is a schematic diagram showing focusing the images provided by two elemental devices and recognizing distances and patterns for assessing in a centralized computer.

Best mode for carrying out the invention

Fig.1 is a schematic diagram showing a mounting location for sensors, fill lights, and operational sticks of a car.

Sensors might be mounted with enough spacing in order to measure distances between two objects correctly.

Operational sticks might be placed in a location and angles with height control to enable a driver to operate them easily.

Fig.2 shows the relationship between sensors and lenses.

Lenses are driven by electricity, oil pressure, or air pressure etc., and connected with equipments which detect the angles of the focusing provided by the sensors to measure distance to objects.

Fig.3 is a schematic diagram showing a operation stick 1.

Leaning angle of the magnetism or the optical device mounted on a top of the operational sticks is detected by a light-receiving panel. It is transmitted to the driving control panel by electrical signal, and then, transmitted to the driving control panel such as engine, steering, brake, and mission by electrical signal to be reflected by driver's intent.

In addition, an acknowledge button is placed on the end of the operational stick as a safety apparatus for not working in unintended operation.

Fig.4 is a schematic diagram showing a operation stick 2.

Buttons for various driving mode are placed on the operational sticks.

For example, automated driving, manual driving, right turn, left turn, and parking mode or the others that driver's favorite can be arranged. These modes are transmitted to the driving control panel by the electronic signals.

Fig.5 is a schematic diagram showing a driving control panel.

The driving control panel comprises memory units such as disks, RAM, flash memory, DVD or the other units created hereafter and instruction execution units. It recognizes patterns of the objects, and distance detected by the operational sticks 1, operational sticks 2 or the sensors. It assures the risks, and shows operations for avoiding them. It reflects driver's intention and assesses the risks for them. If it is driven using automated diving mode, the guardrail and or the center lines are recognized for the securities of the forward and backward.

Fig.6 is a schematic diagram showing a driving sign-board.

The driving sign-board mainly comprises a map showing a location of the car. It also shows notices or regulations based on the traffic signs.

It shows scheduled driving route, if destination, access point and starting point is provided.

The driving alarm device is a display showing the occasion required avoiding, the current driving mode, the notice etc. in order to drive safely.

Fig.7 is a schematic diagram showing patterning for images provided by photographic device and the high-frequency radio wave provided by antenna as well as distances.

The information is sent to control equipment by way of memory units. Patterning is assessed for safety driving to control driving.

And then, it is sent to driving control device (38) which assesses information provided by driving operational sticks in order to control comprehensively.

Expressions of reference letters

- 1 Main body of car
- 2 Operation stick 1
- 3 Operation stick 2
- 4 Trunk room
- 5 Rear seat
- 6 Exposure element
- 7 Infrared auxiliary lighting equipment
- 8 Super-directional antenna for electromagnetic waves
- 9 Driver's seat
- 10 Seat next to the driver
- 11 Driving indication board
- 12 Lens
- 13 Driving means
- 14 Lens drive motor
- 15 Lens angle detection stick
- 16 Object estrangement distance sensing device
- 17 Exposure element
- 18 Magnetic or optics device
- 19 Operation stick angle detection board
- 20 Safe button
- 21 Various driving mode setting button
- 22 DISK storage device
- 23 Pattern recognition and a driving control calculation device

- 24 The present operation position map display of 3-dimension
- 25 The present speed visual display unit
- 26 Number of the engine turns visual display unit
- 27 Planned run site figure display unit
- 28 Operation alarm equipment
- 29 Front near miss alarm lamp
- 30 Back near miss alarm lamp
- 31 Front traffic restriction display
- 32 Attention object visual display unit in driving
- 33 Displays, such as a run destination, a course ground, and the remaining time required
- 34 Direction instructions, light-related visual display unit
- 35 Photography equipment
- 36 Image composition and range-finding and a patterning microcomputer
- 37 A microcomputer for instructions such as dangerous judgment and evasion of a patternized picture
- 38 General driving control units

Industrial applicability

The present invention relates to a car to be omitted a steering wheel, a brake pedal, an accelerator pedal and a clutch and driven safely with one or more operational sticks as a transit vehicle or a service vehicle.

The driving sign-board showing the road condition, route to the destination, current speed, and condition of acceleration and decelerating, information of the dangerous material and remaining fuel is used in place of display mainly containing speedometer which is disposed in transit vehicles before.

In the present invention, automated driving or manual driving is selected depending on driver's skills. The present invention provides a safe transit vehicle or a service vehicle with decreased possibility of an accident.